RAPID TRANSIT LIGHT RAIL SYSTEM

OIL/GAS | SEWER | STORMWATER | POWER | **WATER** | TELCO

PROJECT OVERVIEW

A key part of the new Gold Coast Rapid Transit Light Rail System was the successful relocation of existing utility assets to ensure the new rail could be laid correctly. Conventional open cut and lay techniques were used, but in some cases this was not possible, largely due to the impact on the local businesses and traffic.

LOCATION
Gold Coast QLD

CLIENT
CLM Infrastructure

PIPE
550mm steel casing

GEOLOGY
Water charged sand

LENGTH
30 & 40 metres

TECHNIQUE
GBM & thrust boring

SCOPE OF WORKS

UEA was contracted to deliver two crossings of the Gold Coast Highway, installing a 550mm steel casing to house the new DICL water mains. Due to the tight constraints required for the successful final connection, a guarantee of 100mm +/- tolerance was required. The methodology had to also allow for ground conditions that consisted of unstable fine sand, typical of the Gold Coast area, which had seen other contractors undermine the main highway throughout the Gold Coast precinct. This was a key factor in identifying pilot tube microtunneling using a guided boring machine as the most suitable trenchless method for completing the crossings successfully.

UEA did not experience any undermining or over-excavation subsidence on the drives using the pilot tube microtunneling method, giving the principal contractor Baulderstone confidence that strict tolerances of grade and safe clearance from existing infrastructure could be constantly met. As such, the reduced risk provided by the guided boring machine meant that UEA could work under full highway traffic, avoiding costly night works which was beneficial to the client.

The pit dimensions were reduced on the first bore, which meant that UEA had to install three metre lengths of steel enveloper pipe, as opposed the preferred six metre lengths, which doubled the installation time by increasing the number of welds.

The second bore of 40 metres was installed smoothly in half the time, thanks to a vacant block of land which allowed for the construction of a larger entry/exit pit.

OUTCOMES

Once the first 30 metre bore was installed, it was resurveyed and found to be only 1mm out from the design, well within tolerance and industry standard. Several local authorities visited the site to witness pilot tube microtunneling firsthand, a great way to gain an understanding of the various and ever-changing trenchless methods available.

Once the steel enveloper pipe was installed, the DICL pipe was inserted using an auger boring machine to jack the pipe through, after which the annulus was filled with an approved grout mix.